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2. Date: February 24, 1993

3. Document No./Title: Draft Technical Memorandum No. 7, Addendum to Final Phase RFI/RI Work Plan, Soil Boring Sampling Plan - Ash Pits 1-4, Incinerator and Concrete Wash Pad

Reviewer's Name: **Agency:** HAZWRAP/DOE Headquarters **Date:** February 17, 1993

Item	Comment(s)	Disposition	Status
1. MAJOR CONCERN	A better definition of the purposes of this study is needed and more justification for boring locations and numbers is necessary. The soil boring program proposed here is significantly different from that presented in the Operable Unit No. 5 (OU5) Work Plan, but no rationale for the changes is presented. See Specific Comments for details.	Section 1.2, Purpose and Scope, has been rewritten to address these issues.	Accepted
1. GENERAL COMMENTS	The large-scale geophysical surveys did not provide much useful information for these sites. They appear to have been used only to confirm what could be seen on aerial photos or visual inspection of the sites, i.e. what did not need to be confirmed. There appears to have been no attempt to use geophysics data to eliminate sites: borings are proposed even when the photo review and the geophysics indicate no anomalies. There also appears to have been no attempt made to use the geophysics to find potential new sites, perhaps because interference from major power lines across the area surveyed obscured much of the data. It is recommended that prior to conducting large-scale geophysical surveys, the need for those studies and the feasibility of obtaining useful information from them be more carefully evaluated.	The geophysical surveys were used to assess the presence of the individual IHSSs (See Sections 2.2.1 through 2.2.6). Based on these results the number of borings have been decreased (eg. IHSS 133.1). Borings are proposed in locations that appeared disturbed from aerial photos (Please see Figure 8).	Rejected
2. GENERAL COMMENTS	Figures showing locations and geophysical data for the IHSS 133 area are not all at the same scale. This lack of consistent scale makes it difficult to correlate locations among figures and hard to assess interpretations. Please use a consistent scale for IHSS 133 figures.	The Figures showing bore hole locations and site locations are at a scale consistent with the other TMs and the Work Plan. The Figures showing the geophysical survey results were provided to us by our subcontractor that provided the services at the 1:2400 scale.	Rejected

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REVIEWED FOR CLASSIFICATION/UCNI
BY G. T. Ostdiek
DATE 3-3-93

ADMIN RECORD

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3. GENERAL COMMENTS	The intent of the Technical Memorandum is to provide a revised soil boring program. To support the need for revision, rational for the changes to the existing program and the anticipated outcome resulting from the program changes should be given. The reason for the boring program should be restated. How the results derived from the program will enhance the site knowledge base should be emphasized. It should be explained how results from a boring study will advance the understanding of the site when the site is primary recognized as a magnetic, metallic anomaly. The technical foundation of which the boring program is built and the rational for the boring program's parts should be better explained.	Section 1.2, Purpose and Scope, has been rewritten to address these issues.	Accepted
1. SPECIFIC COMMENTS	Section 1.1, p. 1, third paragraph: Please add units after 500 in the first sentence.	This issue has been addressed.	Accepted
2. SPECIFIC COMMENTS	Section 1.1, p. 2, third paragraph: Please clarify the nature of the rayscope survey.	As stated in the TM, this statement was taken from the Work Plan. The intent of the statement is to show that metals were indicated. ASI's knowledge of such a survey is only what information is provided in the Work Plan, that the survey detected metals.	Rejected
3. SPECIFIC COMMENTS	Section 1.2, p. 3, first paragraph: Please extend the purpose and scope section to include a discussion of the rationale for presenting a boring plan that is very different than that contained in the Operable Unit No. 5 (OU5) Work Plan. The OU5 Work Plan proposes many more borings (85 instead of 29) and a very different location strategy.	This issue has been addressed.	Accepted

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4. SPECIFIC COMMENTS	Section 2.0, p. 4, second paragraph: Electromagnetic (EM) surveys can also indicate contaminated groundwater plumes because of their relatively high conductivities. Please state whether this type of interpretation was considered.	Yes, this interpretation was considered (see discussion of high and low conductive groundwater, Section 2.2).	Accepted
5. SPECIFIC COMMENTS	Section 2.2, p. 6: Please expand on the information to be expected from each of the types of geophysical data mentioned here. Also please expand on the nature of the data presented in Figures 3, 4, 5 and 7. For example, what was the grid spacing used, what were the expected penetration depths, and were these data processed in any way? In particular one would expect the EM data to show more power line interference than is apparent in Figures 6 and 7.	This issue has been addressed.	Accepted
6. SPECIFIC COMMENTS	Section 2.2, p.6, third paragraph: For clarity please refer explicitly to a surface feature location map rather than a traverse map in the first sentence. In addition, because of the differences in map scales pointed out the General Comment No. 1 it is very difficult for the reader to verify the correlations alluded to here. For example, it is not clear that the magnetic surveys were seeing the IHSSs rather than some of the isolated magnetic objects that are mapped on Figure 5. Please discuss further.	This issued has been addressed.	Accepted

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Item	Comment(s)	Disposition	Status
7. SPECIFIC COMMENTS	Section 2.2.1, p. 7, first paragraph: (1) Although it is difficult to tell because of map scale differences, there appears to be a small magnetic anomaly at the approximate location of IHSS 133.1. Please discuss. (2) IHSS 133.1 is the only IHSS for which boring locations are discussed in the 2.2 Sections. Boring locations for all IHSSs are discussed in Section 3.1. Recommend that the location discussion be deferred until Section 3.1. The reference to "6 feet into bedrock" is not clear - see comments on Section 3.1.	(1) This issue has been addressed by rewriting the text as follows: A small magnetic anomaly was identified that corresponds to an area of dumped concrete on the preliminary Surface Features Map. Because drum lids were found in the area, the anomaly is probably attributed to metallic debris in or under the concrete. (2) This issue has been addressed.	Accepted
8. SPECIFIC COMMENTS	Section 2.2.2, p. 7, second paragraph: Please clarify the significance of buried magnetic objects and magnetic debris. Is the interpretation that the magnetometer is seeing the magnetic signature of the ash? If the magnetometer is simply seeing magnetic objects, do these necessarily have any relationship to the ash pits? The anomaly associated with IHSS 133.2 is a magnetic low in contrast to relatively strong highs found at other pit locations. Is the interpretation that this low is part of the paired high/low pattern, the high being obscured by the power line? Please clarify.	Additional text has been included to further clarify and address these issues.	Accepted
9. SPECIFIC COMMENTS	Section 2.2.3, p. 8, second paragraph: Suggest that the material in the first three sentences of this paragraph be discussed at the beginning of Section 2.2 (See Specific Comment No. 5).	This issue has been addressed.	Accepted

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10. SPECIFIC COMMENTS	Section 2.2.4, p. 9, second paragraph: The delineation of IHSS 133.4 by the EM data that is referred to here is not apparent in the data shown on Figures 6 and 7. These figures show only a broad conductivity high covering an area many times larger than would be expected from the pits. It is difficult to see how these data could be interpreted as evidence of the pit and how the location of the pit could be adjusted from them. Please clarify.	It had already been determined from the traverse survey that the location of the concrete pad and other features on the west side of the area needed to be corrected, using the mylar overlay. The low conductive area shown on the vertical dipole conductivity map corresponded very closely in size and shape to IHSS 133.4, and was used to confirm the adjustment of the location. It also tends to suggest that a low conductive material (ash?) was deposited in the pit.	Rejected
11. SPECIFIC COMMENTS	Section 2.2.5, p. 9, third paragraph: IHSS 133.5 is said to be an area of cement rubble piles and scattered metallic debris and is shown in an area of severe power line interference on Figures 3 and 4. It is difficult to see how any reliable interpretation of the EM data can be made with so many sources of interference. Also the significance of the interpretation is nuclear. Please clarify.	As pointed out, the EM data is not significantly effected by powerline interference. The only significant interpretation of this data was the possible delineation of the possible floor and foundation of the old incinerator. By using old vertical aerial photographs, it was possible to plot the approximate position of the incinerator prior to its removal. Both the vertical dipole conductivity map, and the in phase map delineated a distinct rectangular, low conductive anomaly, that exactly coincides with the position of the incinerator as plotted on the mylar overlay. The interpretation is that the floor and foundation are still in place, and that their presence should be confirmed with a drill hole.	Rejected
12. SPECIFIC COMMENTS	Section 2.2.5, p. 10, second paragraph: Given the severe interference evident in the magnetic data suggest speculations about the relationship of magnetic data to IHSS 133.3 be deleted.	This issue has been addressed.	Accepted

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13. SPECIFIC COMMENTS	Section 2.2.6, pp. 10 and 11: The relevance of the discussion of the relationship between conductivity data and topography and subsurface conditions to this IHSS is not clear. Suggest that this discussion as well as the one that occurs in Section 2.2.5 be consolidated into single discussion of what can be learned from large-scale conductivity patterns. One possibility might be the approximate courses of subsurface drainage paths.	This issue has been addressed in section 2.2.6 by removing the extensive discussion at the end of the section.	Accepted
14. SPECIFIC COMMENTS	Section 3.0, p. 12: There needs to be a clear statement of the intent sampling program at the beginning of this section. Is the intent to define the extent of the IHSSs, sample the ash and concrete, sample the soil beneath or above the IHSSs, locate the incinerator foundation, locate metallic debris, or some or all of these things?	This issue has been addressed in two places, Section 1.2 and Section 3.0. An abbreviated statement of the Section 1.2 statement has been written into the beginning of Section 3.0.	Accepted
15. SPECIFIC COMMENTS	Section 3.1, title: The sampling proposed is not related to a grid; the title appears to be a misnomer.	This issue has been addressed. The title has been changed.	Accepted
16. SPECIFIC COMMENTS	Section 3.1, p. 12, first paragraph: (1) This is the first mention of the 1992 HPGe gamma survey. If these data relevant to the choice of boring locations, they should be briefly reviewed in this document. (2) There needs to be a justification of the numbers and spacing of borings. Again, it is not clear what these borings are supposed to sample, concrete and ash, associated soil or both. Please be specific.	(1) An additional section, Section 2.3 has been provided to discuss the HPGe survey purpose and current status. Also, Section 3.3 has been updated to include provisions for bore hole locations based on the HPGe Survey results. (2) This issue has been addressed in Sections 1.2 and 3.3.	Accepted

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17. SPECIFIC COMMENTS	Section 3.1, p. 13, first paragraph: This discussion needs to include specific statements about which depth intervals will be sampled for soil analyses. The intent seems to be to sample as deep as the weathered bedrock. Sampling this deep seems unnecessary in a Phase I investigation. It would suffice to sample the interval immediately beneath the ash pits or the concrete to see if contaminants are leaching into the soil. Please include an explicit statement of sampling intervals and the rationale behind the choice. Also please explain the significance of encountering sandstone and make a clear distinction between weathered and unweathered bedrock.	The issue concerning depth intervals to sample for soil analysis has been addressed in section 3.3. Sampling will continue to bedrock as requested by EPA/CDH. An explanation or the significance of sandstone has been incorporated into Section 3.1.	Accepted
18. SPECIFIC COMMENTS	Section 3.2, p. 14, third paragraph: The statement about sampling at the alluvium/bedrock interface is misplaced in this section. There seems no reason that this interval should be particularly significant if bedrock means weathered bedrock, which is hydraulically connected to the alluvium. See also Specific Comment No. 18.	This issue has been addressed.	Accepted
19. SPECIFIC COMMENTS	Section 3.2, p. 14, fourth paragraph: The discussion of surface (or isolation) casing seems somewhat confused. Isolation casing is only useful when there is a confining layer in which to set it. Also is there a distinction being made between weathered bedrock and bedrock? If bedrock is not hydraulically connected to the alluvium/weathered bedrock system, is inappropriate to sample it in a Phase I study and it should not be drilled, eliminating the need for isolation casing. Please clarify these issues.	This issue has been addressed.	Accepted

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20. SPECIFIC COMMENTS	Section 3.3, p. 18, second paragraph: Please discuss the justification for the analytic list. Please state the data quality level to be achieved. Recommend that semivolatile organic compounds (SVOC) be added to the list since they are often found associated with ash.	The analytic list presented in the TM was taken directly from the Work Plan. Also, SVOCs will not be analyzed for. As stated in the Work Plan, page 7-8, samples will not be analyzed for TCL volatiles and semi-volatiles as these compounds are unlikely to be present in the ash.	Comment noted
21. SPECIFIC COMMENTS	Section 3.3, p. 19, first paragraph: Please discuss the justification for the proposed groundwater sampling. Please also discuss the data quality level that is to be achieved and whether these samples are to be sent to an off-site laboratory. It is questionable if BAT sampling will produce samples suitable for Level III quality that will warrant the expense of off-site laboratory analysis. The suggested backup bailer method will definitely not produce samples from open or partially cased boreholes suitable for Level III quality. The expense associated with these necessarily screening-level samples may not be justified. Also please justify the analyte list and consider adding SVOCs.	Section 1.2 addresses the justification of groundwater sampling. Section 3.3 has been rewritten to include the use of the Hydropunch II or any other sampling devise that will be capable of Level III, IV, and V quality analysis as alternatives, and addresses data quality levels. The analytes for the groundwater are the same as those for the soils since these are the suspected contaminants. Also, SVOCs will not be analyzed for. As stated in the Work Plan, page 7-8, samples will not be analyzed for TCL volatiles and semi-volatiles as these compounds are unlikely to be present in the ash.	Accepted
22. SPECIFIC COMMENT	Section 3.3, p. 19, third paragraph: Please describe and justify the geotechnical analyses discussed in this paragraph.	This issue has been addressed.	Accepted